Chalcopyrite-pyrite mineralization associated with orthogneiss, in Lutzow-Holm Bay, Eastern Antarctica

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Field and petrographic studies reveal chalcopyrite, or chalcopyrite-pyrite mineralization is found in Lower Proterozoic orthogneiss (tonalite-monzonite-quartz monzonite and metagabbro cumulate) in the Lutzov-Holm Bay area, Eastern Antarctica. Monzonitic rocks are composed of plagioclase-K-feldspar-biotite-stilpnomelane and quartz, and have subduction-related geochemical characteristics, fractionated LREE's and high Sr/Y ratio, whereas metagabbro cumulate comprises clinopyroxene, minor plagioclase, hornblende, quartz, biotite and ilmentite, and is tholeiitic, and magmatically unrelated. The igneous rocks have undergone metamorphism to upper amphibolites facies, shown by garnet intergrowth. Chalcopyrite is intergrown in the metamorphic fabric with all minerals, but some samples reveal chalcopyrite is associated with locally coarser aggregates of biotite. Although speculative, chalcopyrite might have been mobilized and segregated at biotite stability, from the metagabbro cumulate.